



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,613	03/01/2004	Kenneth George Stahl JR.	GP-304342	8855

7590

11/13/2006

Kathryn A. Marra, Esq.  
General Motors Corporation  
Legal Staff - Mail Code 482-C23-B21  
P. O. Box 300  
Detroit, MI 48265-3000

EXAMINER
----------

LIN, ING HOUR

ART UNIT	PAPER NUMBER
----------	--------------

1725

DATE MAILED: 11/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/790,613

**Applicant(s)**

STAHL ET AL.

**Examiner**

Ing-Hour Lin

**Art Unit**

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 3-19, 22-27 and 30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3-19, 22-27, and 30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1, 3-4, 8-11, 13, 18-19 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chandley et al in view of Setzer et al.

Chandley et al (col. 4, lines 16+) teach the claimed casting mold 10 and method for casting an article, comprising the use of providing a casting mold including a sprue (first ingate 12), a runner system 19 comprising at least one channel (ingate 12, exit gate 15) and one

Art Unit: 1725

alloyant-containing reaction chamber 14; at least one ingate 12, exit gate 15; at least one mold element 10a, 10b; means for adjusting the chemistry of molten metal by disposing a metallurgical modifier (alloyant 20) within the at least one chamber; at least one mold core 17; porous ceramic filter 60 and vacuum means 46 for controlling the flow of molten metal through the chamber. Chandley et al teach and example the melt including iron castings and fail to specifically teach the molten aluminum as the melt and a metallurgical modifier selected for the molten aluminum. However, the prior art of Chandley et al claimed the casting method and casting mold configured for melt not restricting to iron castings but including general metal and alloy castings as indicated in the their claims. Further, Setzer et al (col. 6, lines 26) teach the use of a metallurgical modifier selected for the molten aluminum for the purpose of modifying and grain refining aluminum alloys, and in particular, hypoeutectic Al-Si alloys, wherein the metallurgical modifier (aluminum master alloys) contains 0.20-20 wt% strontium and 0.10-10%boron. It would have been obvious to one having ordinary skill in the art to provide Chandley et al the use of the metallurgical modifier (aluminum master alloys) contains 0.20-20% strontium as taught by Setzer et al in order to cast molten aluminum alloy with fine grain.

4. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chandley et al in view of Setzer et al and further in view of either Trager et al or Craig et al.

Chandley et al in view of Setzer et al fails to teach the use of metallurgical modifier in the form of bar stock or granular form or pellet form. However, Trager et al (col. 1, lines 36+) teach the use of metallurgical modifier in the form of bar stock or granular form and Craig et al (col. 5, lines 36+) teach the use of pellet form. Each form of inoculating is used for the purpose of

Art Unit: 1725

controlling inoculating dissolution rate in the metal melt. It would have been obvious to one having ordinary skill in the art to provide Chandley et al in view of Setzer et al the use of metallurgical modifier in the form of bar stock or granular form or pellet form as taught by either Trager et al or Craig et al in order to effectively control inoculating dissolution rate in the aluminum alloy melt.

5. Claims 12, 17, 26 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chandley et al in view of Setzer et al and further in view of Fisher et al.

Chandley et al in view of Setzer et al fails to teach the use of silicon carbide coated ceramic foam filter and the use of a plurality of cavities and channels having metallurgical modifier. However, Fisher et al (col. 4, lines 64+) teach the use of silicon carbide coated ceramic foam filter 5 and the use of a plurality of cavities 6A-6J and channels having metallurgical modifier for the purpose of inoculating the metal melt. It would have been obvious to one having ordinary skill in the art to provide Chandley et al in view of Setzer et al the use of silicon carbide coated ceramic foam filter and the use of a plurality of cavities and channels having metallurgical modifier selected for molten aluminum as taught by Fisher et al in order to effectively of inoculate the melt aluminum alloys.

6. Claims 14-16 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chandley et al in view of Setzer et al and further in view of Daussan et al.

Chandley et al in view of Setzer et al fails to teach the use of a plurality of chambers each containing metallurgical modifier. However, Daussan et al (col. 3, lines 48+) teach the use of a

Art Unit: 1725

plurality of chambers formed by filters plates 14 and 15 having a series of filter holes 17 each containing metallurgical modifier for the purpose of inoculating the metal melt. It would have been obvious to one having ordinary skill in the art to provide Chandley et al in view of Setzer et al the use as taught by Daussan et al in order to effectively of inoculate the metal melt.

### ***Response to Arguments***

7. Applicant's arguments filed 8/25/06 have been fully considered but they are not persuasive. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Chandley et al (col. 4, lines 16+) teach the claimed casting mold 10 and method for casting an article, comprising the mold elements and the use of providing a casting mold including a sprue (first ingate 12), a runner system 19 comprising at least one channel (ingate 12, exit gate 15) and one alloyant-containing reaction chamber 14; at least one ingate 12, exit gate 15; at least one mold element 10a, 10b; means for adjusting the chemistry of molten metal by disposing a metallurgical modifier (alloyant 20) within the at least one chamber; at least one mold core 17; porous ceramic filter 60 and vacuum means 46 for controlling the flow of molten metal through the chamber. Chandley et al teach and example the melt including iron castings and fail to specifically teach the molten aluminum as the melt and a metallurgical

Art Unit: 1725

modifier selected for the molten aluminum. However, the prior art of Chandley et al claimed the casting method and casting mold configured for melt not restricting to iron castings but including general metal and alloy castings as indicated in the their claims. Therefore, the modification or the prior art is using the metallurgical modifier selected for the claimed molten aluminum. Further, Setzer et al (col. 6, lines 26) teach the use of a metallurgical modifier selected for the molten aluminum for the purpose of modifying and grain refining aluminum alloys, and in particular, hypoeutectic Al-Si alloys, wherein the metallurgical modifier (aluminum master alloys) contains 0.20-20 wt% strontium and 0.10-10%boron. It would have been obvious to one having ordinary skill in the art to provide Chandley et al the use of the metallurgical modifier (aluminum master alloys) contains 0.20-20% strontium as taught by Setzer et al in order to cast molten aluminum alloy with fine grain.

### ***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 1725

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ing-Hour Lin whose telephone number is (571) 272-1180. The examiner can normally be reached on M-F (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*I. H. Lin*

I.-H. Lin

11/08/06

KEVIN KERNS *Kevin Kerns 11/8/06*  
PRIMARY EXAMINER